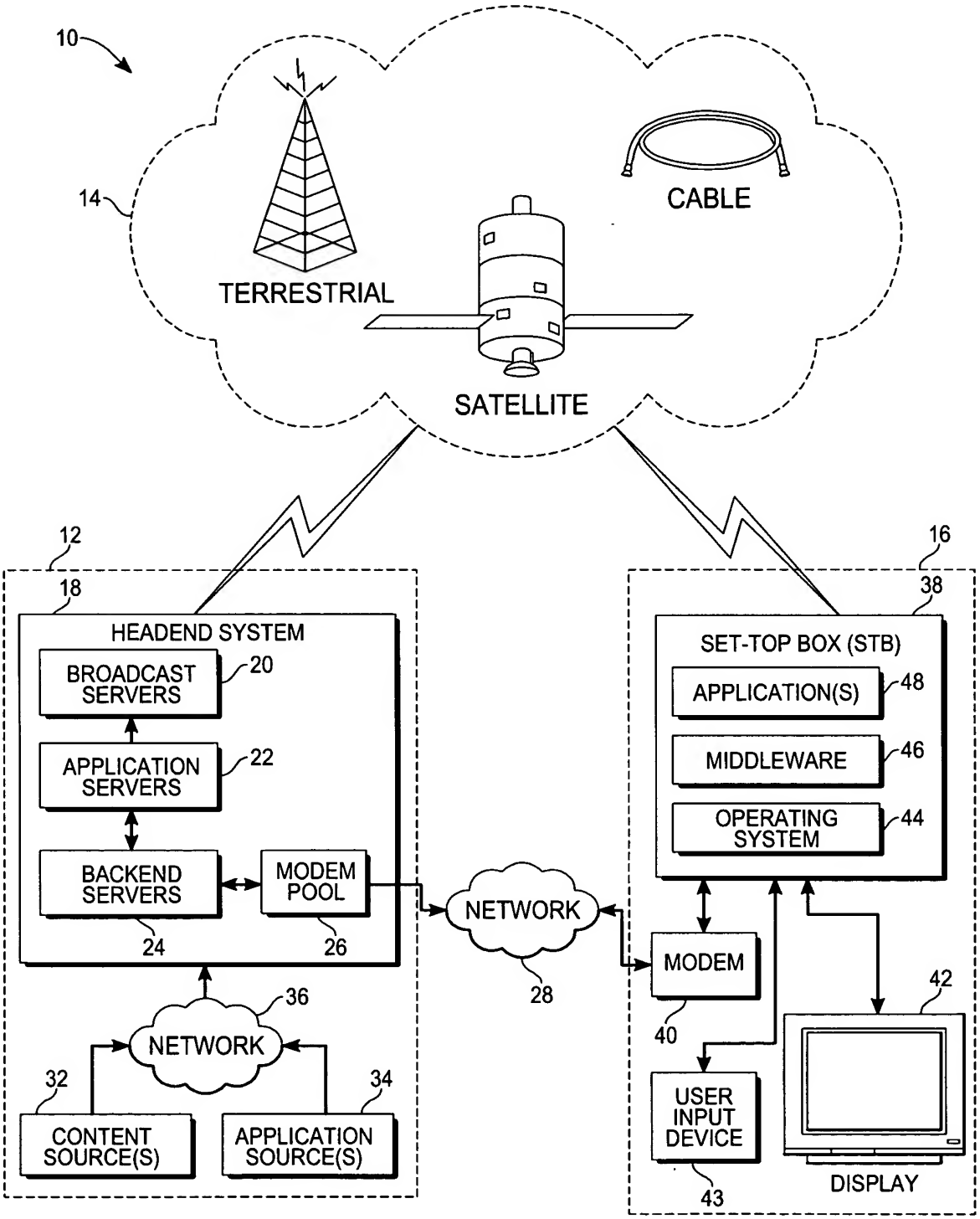
10
14
TERRESTRIAL
CABLE
SATELLITE
12
18
HEADEND SYSTEM
BROADCAST SERVERS
20
APPLICATION SERVERS
22
BACKEND SERVERS
MODEM POOL
24
26
NETWORK
36
32
34
CONTENT SOURCE(S)
APPLICATION SOURCE(S)
NETWORK
28
16
38
SET-TOP BOX (STB)
APPLICATION(S)
48
MIDDLEWARE
46
OPERATING SYSTEM
44
MODEM
40
42
USER INPUT DEVICE
43
DISPLAY

Fig. 1

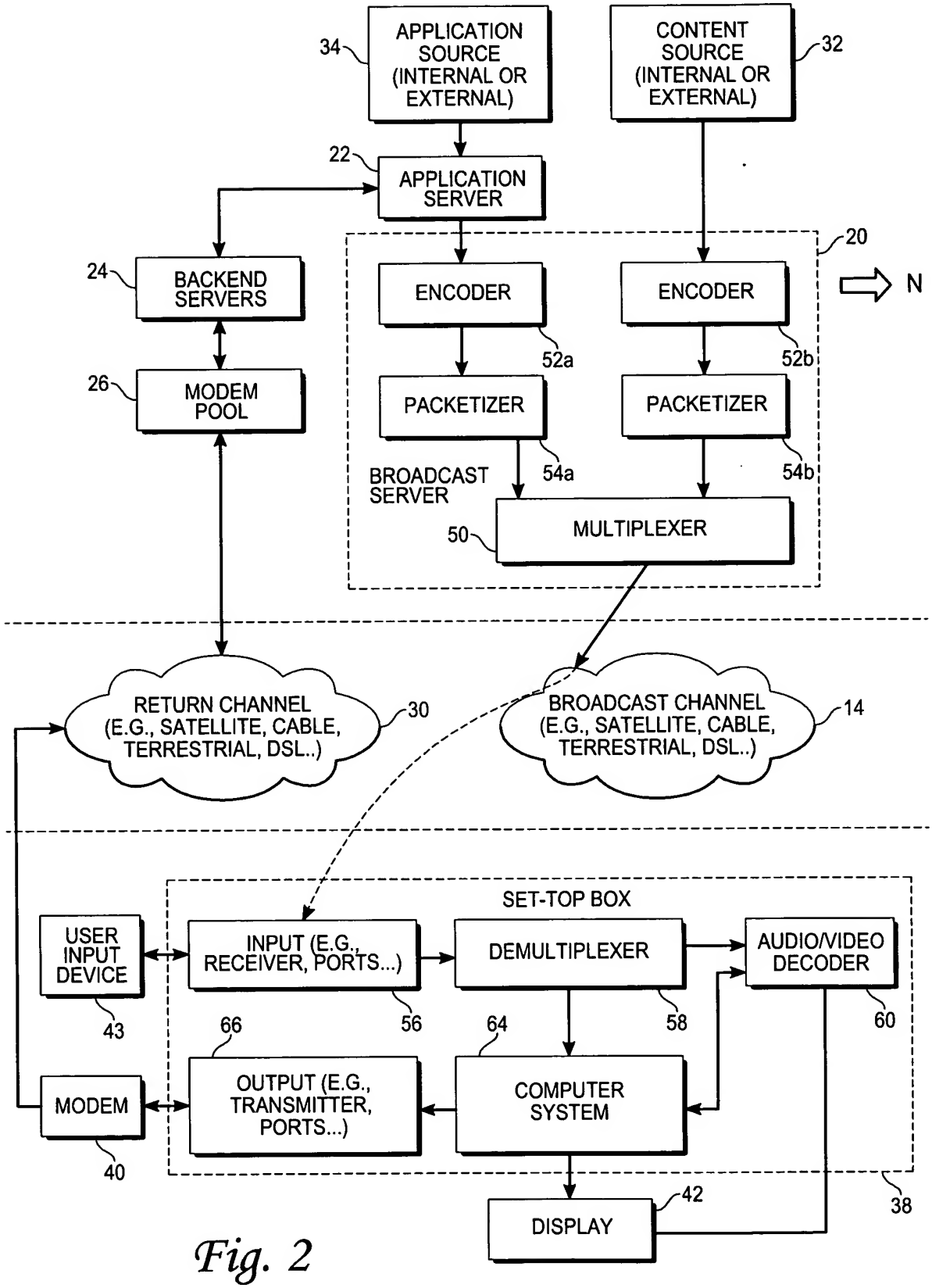
APPLICATION SOURCE (INTERNAL OR EXTERNAL)
34
CONTENT SOURCE (INTERNAL OR EXTERNAL)
32
22
APPLICATION SERVER
20
24
BACKEND SERVERS
ENCODER
ENCODER
N
52a
52b
26
MODEM POOL
PACKETIZER
PACKETIZER
BROADCAST SERVER
54a
54b
50
MULTIPLEXER
RETURN CHANNEL (E.G., SATELLITE, CABLE, TERRESTRIAL, DSL..)
30
BROADCAST CHANNEL (E.G., SATELLITE, CABLE, TERRESTRIAL, DSL..)
14
SET-TOP BOX
USER INPUT DEVICE
43
INPUT (E.G., RECEIVER, PORTS...)
56
DEMULTIPLEXER
58
AUDIO/VIDEO DECODER
60
66
64
MODEM
40
OUTPUT (E.G., TRANSMITTER, PORTS...)
COMPUTER SYSTEM
38
42
DISPLAY

Fig. 2

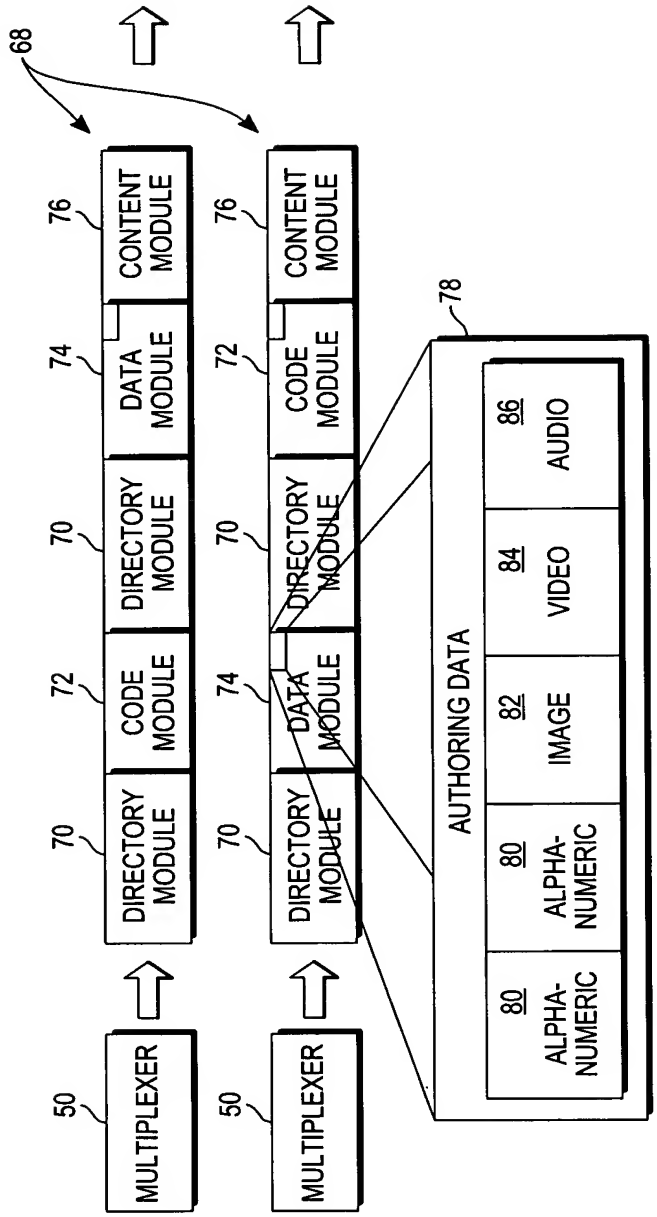
68
MULTIPLEXER
50
DIRECTORY MODULE
70
CODE MODULE
72
DATA MODULE
74
CONTENT MODULE
76
78
AUTHORING DATA
ALPHA-NUMERIC
80
IMAGE
82
VIDEO
84
AUDIO
86

Fig. 3

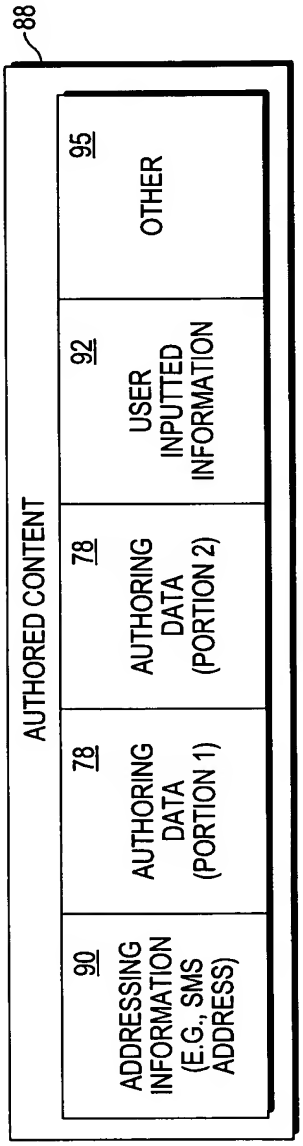
88
AUTHORED CONTENT
ADDRESSING INFORMATION (E.G., SMS ADDRESS)
90
AUTHORING DATA (PORTION 1)
78
AUTHORING DATA (PORTION 2)
78
USER INPUTTED INFORMATION
92
OTHER
95

Fig. 4

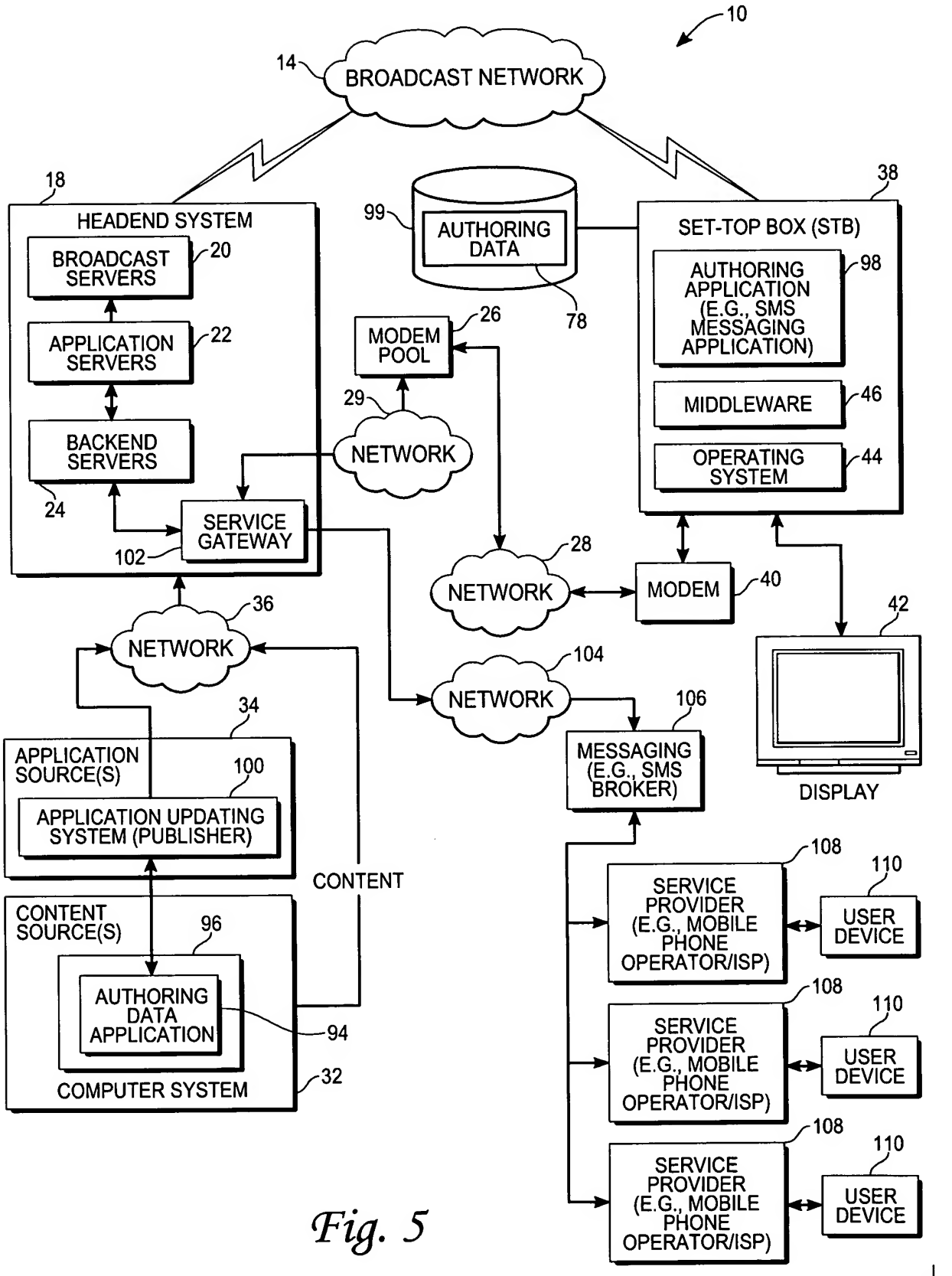
10
14
BROADCAST NETWORK
18
HEADEND SYSTEM
BROADCAST SERVERS
20
APPLICATION SERVERS
22
BACKEND SERVERS
24
SERVICE GATEWAY
102
99
AUTHORING DATA
78
38
SET-TOP BOX (STB)
AUTHORING APPLICATION (E.G., SMS MESSAGING APPLICATION)
98
MIDDLEWARE
46
OPERATING SYSTEM
44
MODEM POOL
26
29
NETWORK
28
NETWORK
MODEM
40
42
DISPLAY
36
NETWORK
104
NETWORK
106
MESSAGING (E.G., SMS BROKER)
34
APPLICATION SOURCE(S)
100
APPLICATION UPDATING SYSTEM (PUBLISHER)
CONTENT
CONTENT SOURCE(S)
96
AUTHORING DATA APPLICATION
94
COMPUTER SYSTEM
32
108
SERVICE PROVIDER (E.G., MOBILE PHONE OPERATOR/ISP)
110
USER DEVICE
108
SERVICE PROVIDER (E.G., MOBILE PHONE OPERATOR/ISP)
110
USER DEVICE
108
SERVICE PROVIDER (E.G., MOBILE PHONE OPERATOR/ISP)
110
USER DEVICE

Fig. 5

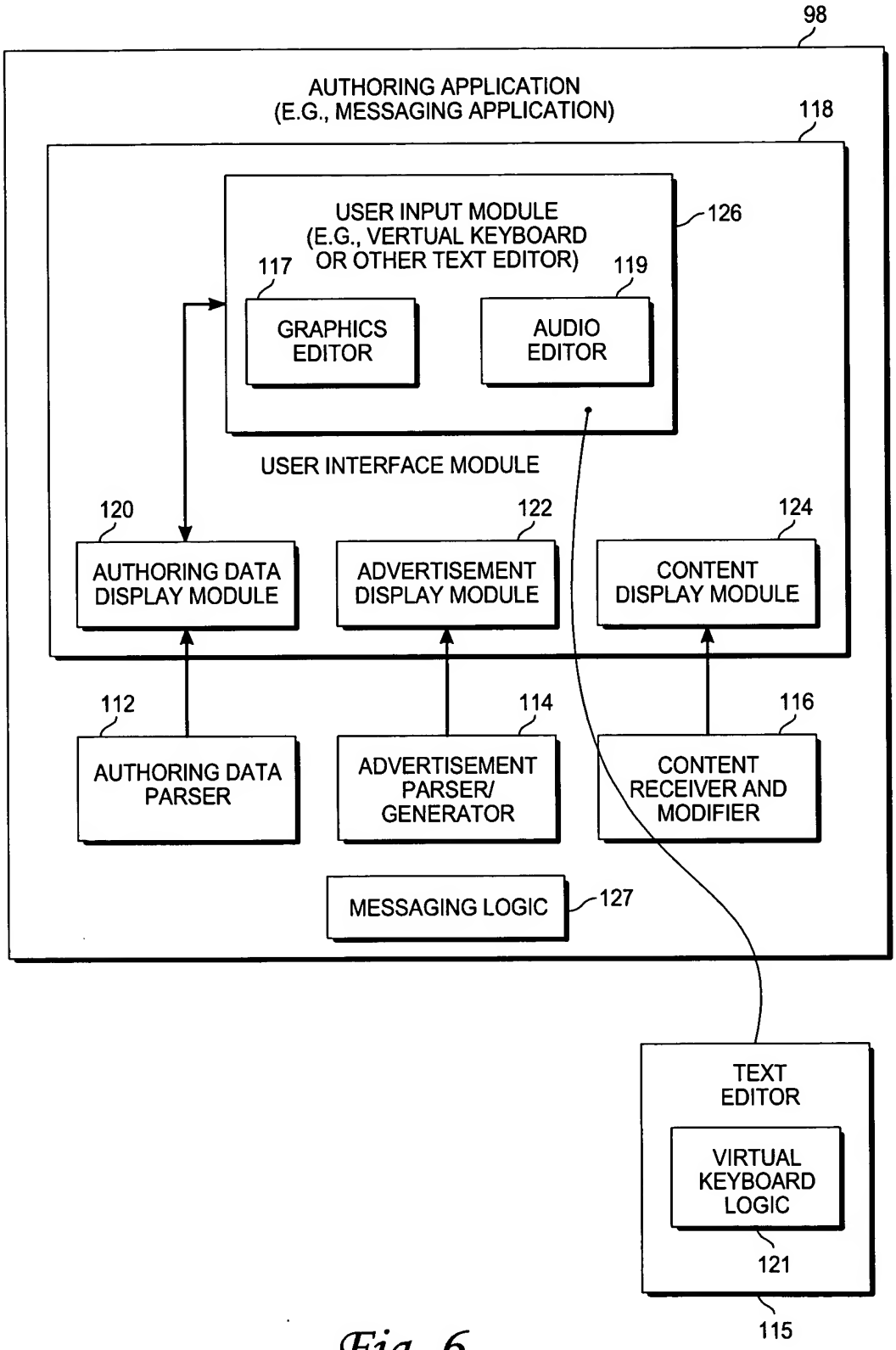
98
AUTHORING APPLICATION
(E.G., MESSAGING APPLICATION)
118
USER INPUT MODULE
(E.G., VERTUAL KEYBOARD
OR OTHER TEXT EDITOR)
126
117
119
GRAPHICS EDITOR
AUDIO EDITOR
USER INTERFACE MODULE
120
122
124
AUTHORING DATA DISPLAY MODULE
ADVERTISEMENT DISPLAY MODULE
CONTENT DISPLAY MODULE
112
114
116
AUTHORING DATA PARSER
ADVERTISEMENT PARSER/ GENERATOR
CONTENT RECEIVER AND MODIFIER
MESSAGING LOGIC
127
TEXT EDITOR
VIRTUAL KEYBOARD LOGIC
121
115

Fig. 6

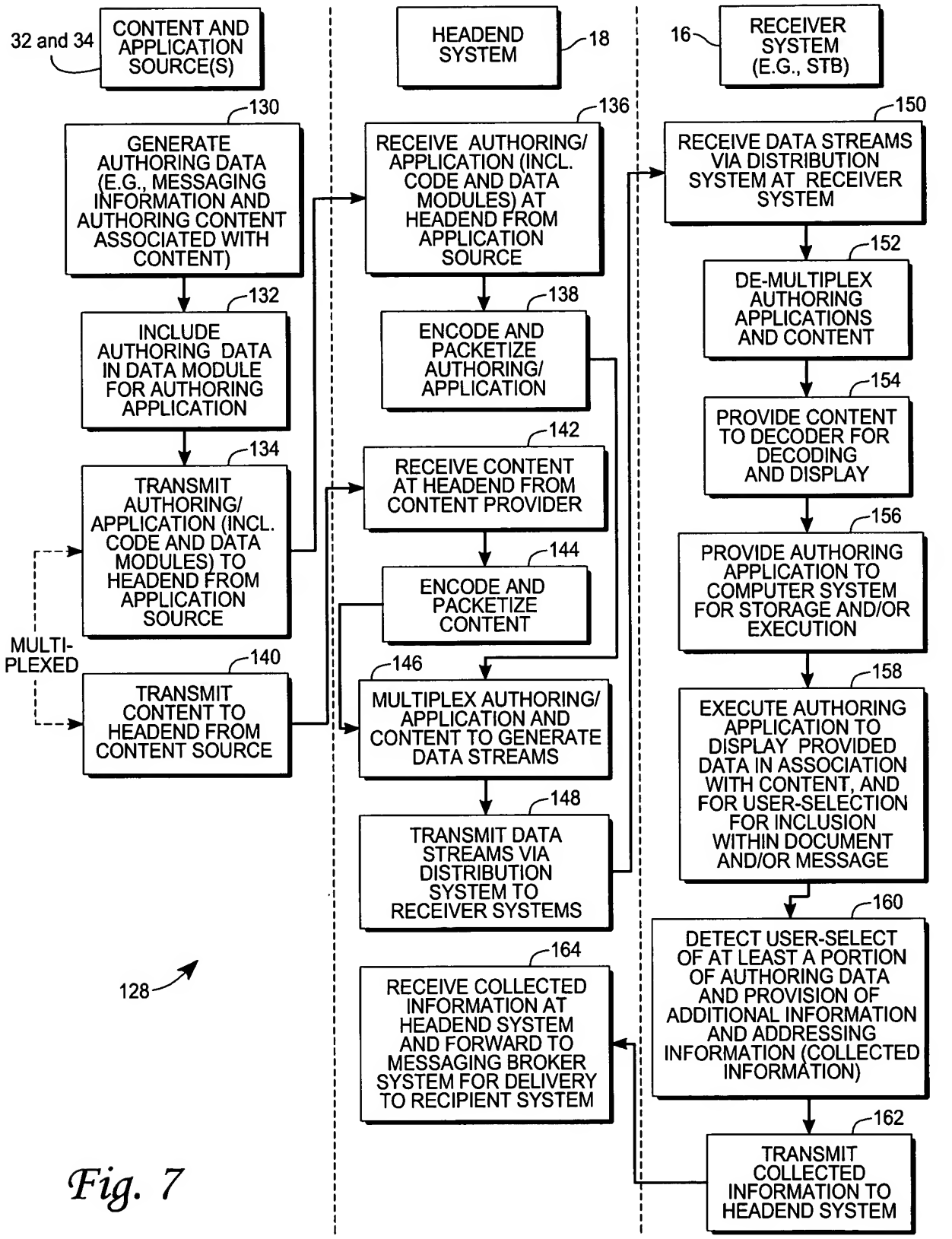
32 and 34
CONTENT AND APPLICATION SOURCE(S)
HEADEND SYSTEM
18
16
RECEIVER SYSTEM (E.G., STB)
130
GENERATE AUTHORING DATA (E.G., MESSAGING INFORMATION AND AUTHORING CONTENT ASSOCIATED WITH CONTENT)
132
INCLUDE AUTHORING DATA IN DATA MODULE FOR AUTHORING APPLICATION
134
TRANSMIT AUTHORING/ APPLICATION (INCL. CODE AND DATA MODULES) TO HEADEND FROM APPLICATION SOURCE
MULTI-PLEXED
140
TRANSMIT CONTENT TO HEADEND FROM CONTENT SOURCE
128
136
RECEIVE AUTHORING/ APPLICATION (INCL. CODE AND DATA MODULES) AT HEADEND FROM APPLICATION SOURCE
138
ENCODE AND PACKETIZE AUTHORING/ APPLICATION
142
RECEIVE CONTENT AT HEADEND FROM CONTENT PROVIDER
144
ENCODE AND PACKETIZE CONTENT
146
MULTIPLEX AUTHORING/ APPLICATION AND CONTENT TO GENERATE DATA STREAMS
148
TRANSMIT DATA STREAMS VIA DISTRIBUTION SYSTEM TO RECEIVER SYSTEMS
164
RECEIVE COLLECTED INFORMATION AT HEADEND SYSTEM AND FORWARD TO MESSAGING BROKER SYSTEM FOR DELIVERY TO RECIPIENT SYSTEM
150
RECEIVE DATA STREAMS VIA DISTRIBUTION SYSTEM AT RECEIVER SYSTEM
152
DE-MULTIPLEX AUTHORING APPLICATIONS AND CONTENT
154
PROVIDE CONTENT TO DECODER FOR DECODING AND DISPLAY
156
PROVIDE AUTHORING APPLICATION TO COMPUTER SYSTEM FOR STORAGE AND/OR EXECUTION
158
EXECUTE AUTHORING APPLICATION TO DISPLAY PROVIDED DATA IN ASSOCIATION WITH CONTENT, AND FOR USER-SELECTION FOR INCLUSION WITHIN DOCUMENT AND/OR MESSAGE
160
DETECT USER-SELECT OF AT LEAST A PORTION OF AUTHORING DATA AND PROVISION OF ADDITIONAL INFORMATION AND ADDRESSING INFORMATION (COLLECTED INFORMATION)
162
TRANSMIT COLLECTED INFORMATION TO HEADEND SYSTEM

Fig. 7

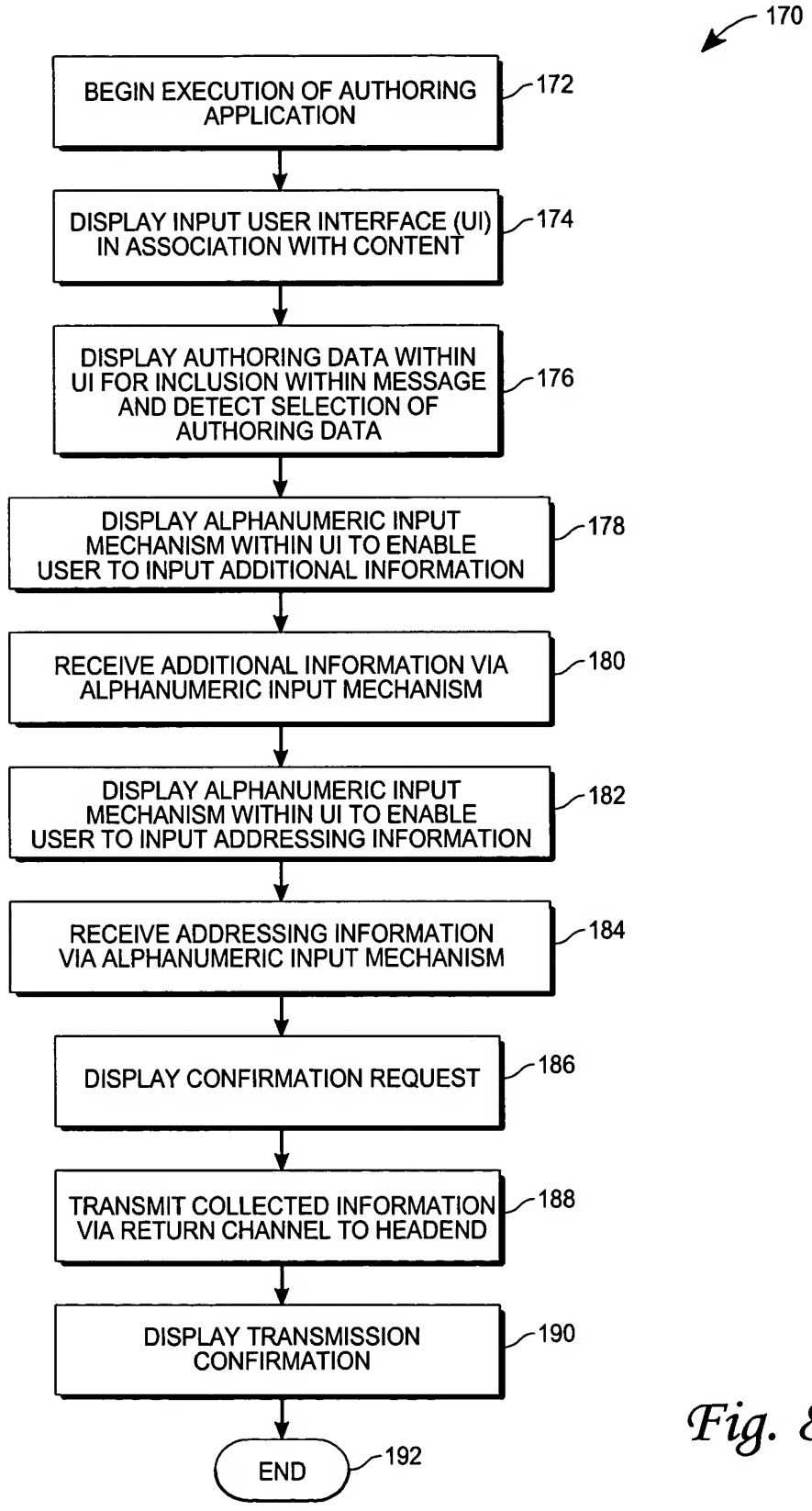
170
BEGIN EXECUTION OF AUTHORING APPLICATION
172
DISPLAY INPUT USER INTERFACE (UI) IN ASSOCIATION WITH CONTENT
174
DISPLAY AUTHORING DATA WITHIN UI FOR INCLUSION WITHIN MESSAGE AND DETECT SELECTION OF AUTHORING DATA
176
DISPLAY ALPHANUMERIC INPUT MECHANISM WITHIN UI TO ENABLE USER TO INPUT ADDITIONAL INFORMATION
178
RECEIVE ADDITIONAL INFORMATION VIA ALPHANUMERIC INPUT MECHANISM
180
DISPLAY ALPHANUMERIC INPUT MECHANISM WITHIN UI TO ENABLE USER TO INPUT ADDRESSING INFORMATION
182
RECEIVE ADDRESSING INFORMATION VIA ALPHANUMERIC INPUT MECHANISM
184
DISPLAY CONFIRMATION REQUEST
186
TRANSMIT COLLECTED INFORMATION VIA RETURN CHANNEL TO HEADEND
188
DISPLAY TRANSMISSION CONFIRMATION
190
END
192

Fig. 8

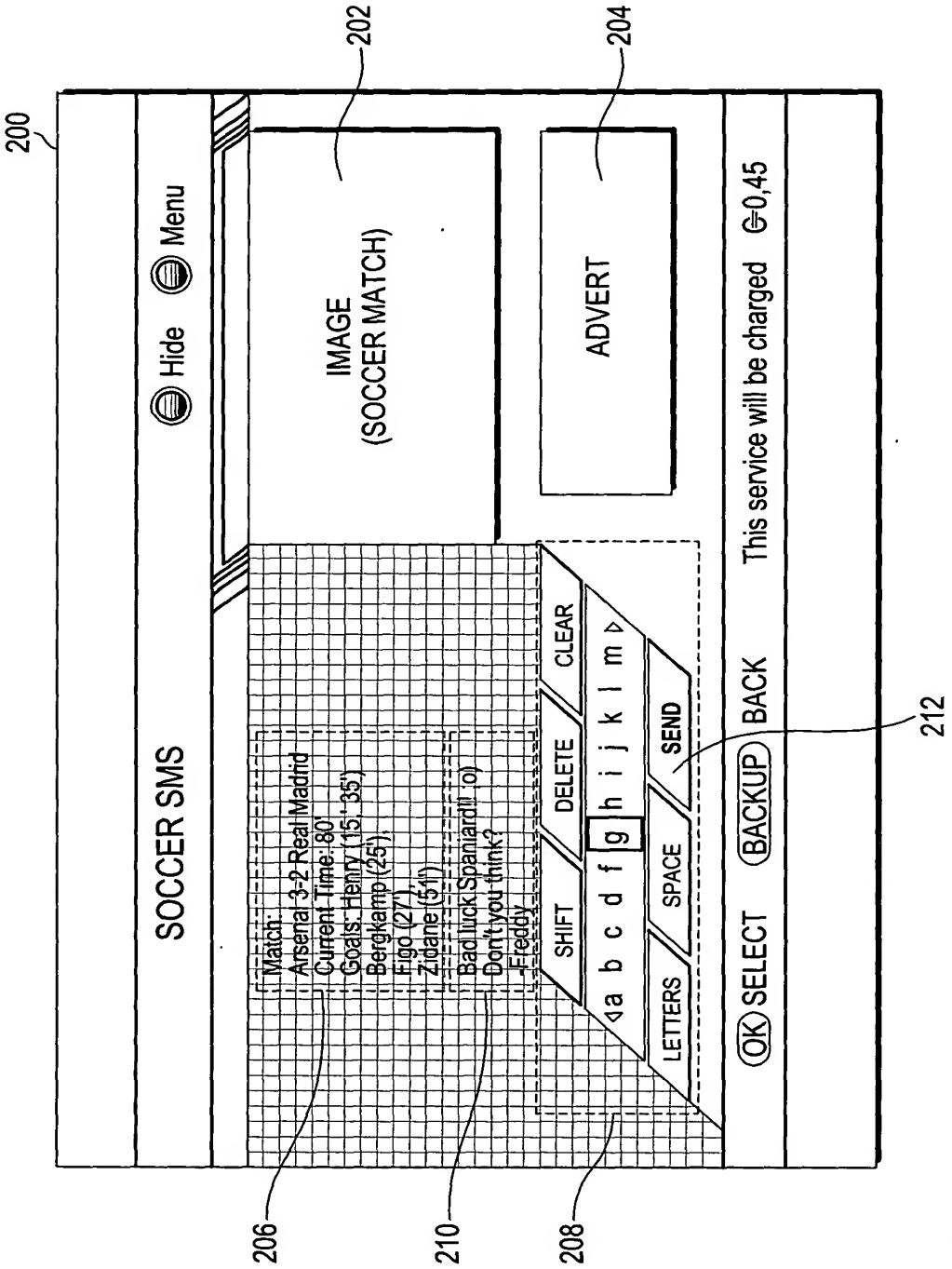
200
202
204
SOCCER SMS
Hide
Menu
IMAGE
(SOCCER MATCH)
ADVERT
This service will be charged €0,45
OK SELECT
BACKUP
BACK
212
Match:
Arsenal 3-2 Real Madrid
Current Time: 80'
Goals: Henry (15', 35')
Bergkamp (25')
Figo (27')
Zidane (51')
Bad luck Spaniard! :o)
Don't you think?
Freddy
206
210
208
SHIFT
DELETE
CLEAR
SEND
SPACE
LETTERS
a b c d f g h i j k l m

Fig. 9

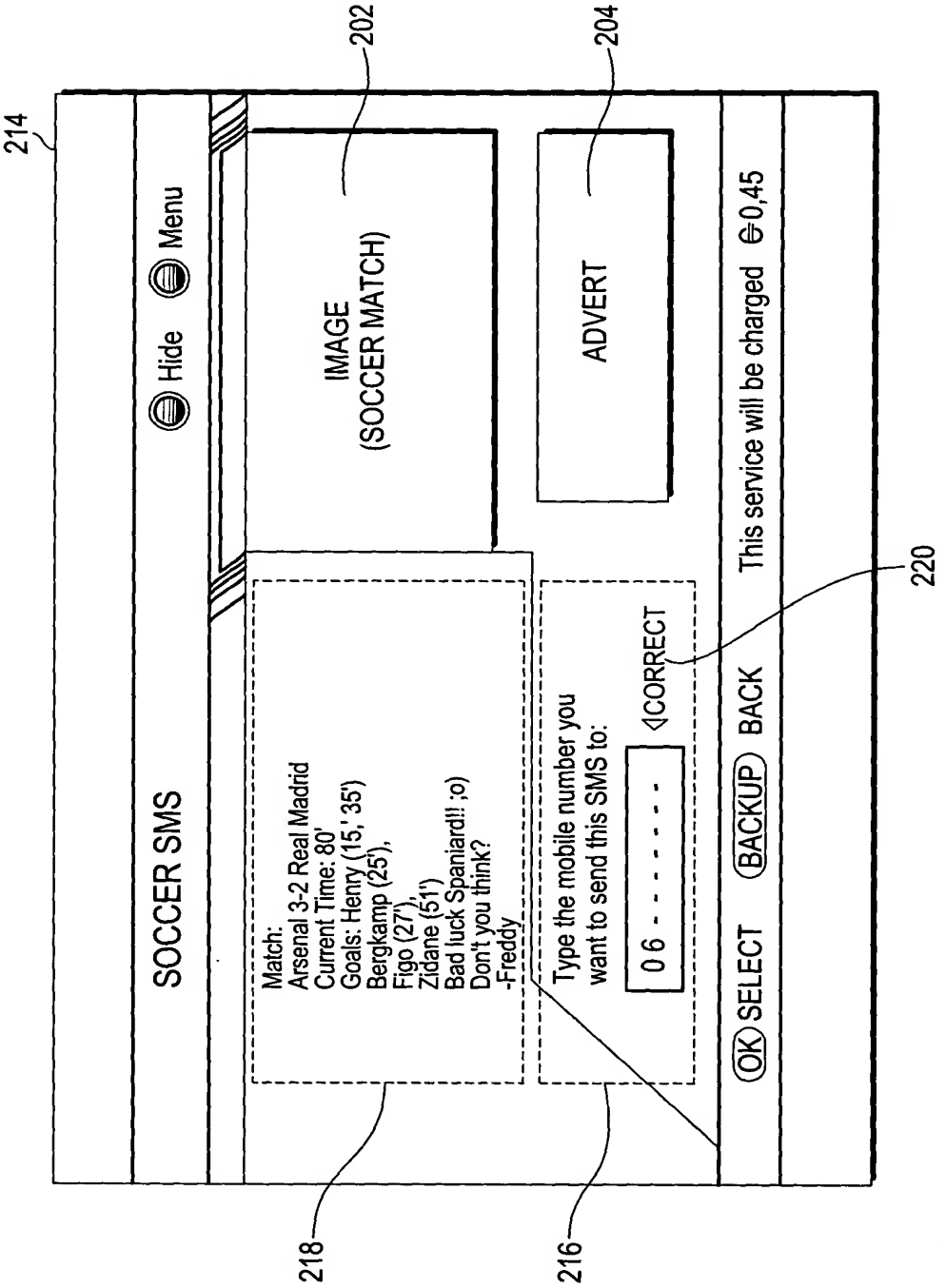
214
202
204
SOCCER SMS
Hide
Menu
IMAGE
(SOCCER MATCH)
ADVERT
This service will be charged €0,45
Match:
Arsenal 3-2 Real Madrid
Current Time: 80'
Goals: Henry (15', 35')
Bergkamp (25'),
Figo (27'),
Zidane (51')
Bad luck Spaniard!! ;o)
Don't you think?
-Freddy
Type the mobile number you want to send this SMS to:
0 6 - - - - - - -
CORRECT
220
OK SELECT
BACKUP BACK
218
216

Fig. 10

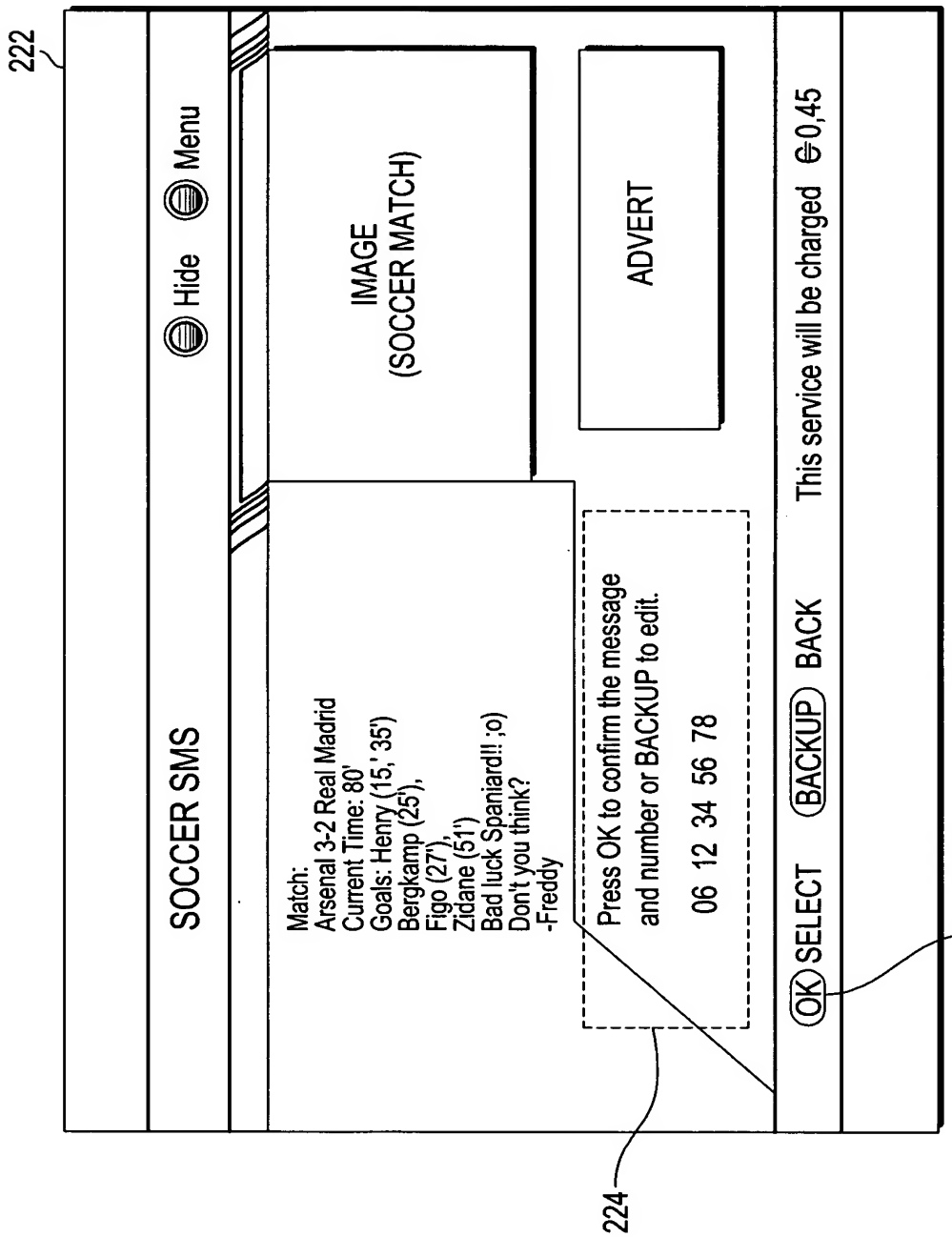
222
SOCCER SMS
Hide
Menu
IMAGE
(SOCCER MATCH)
ADVERT
Match:
Arsenal 3-2 Real Madrid
Current Time: 80'
Goals: Henry (15,' 35')
Bergkamp (25'),
Figo (27'),
Zidane (51')
Bad luck Spaniard!! ;o)
Don't you think?
-Freddy
Press OK to confirm the message and number or BACKUP to edit.
06 12 34 56 78
This service will be charged €0,45
OK SELECT
BACKUP BACK
224
226

Fig. 11

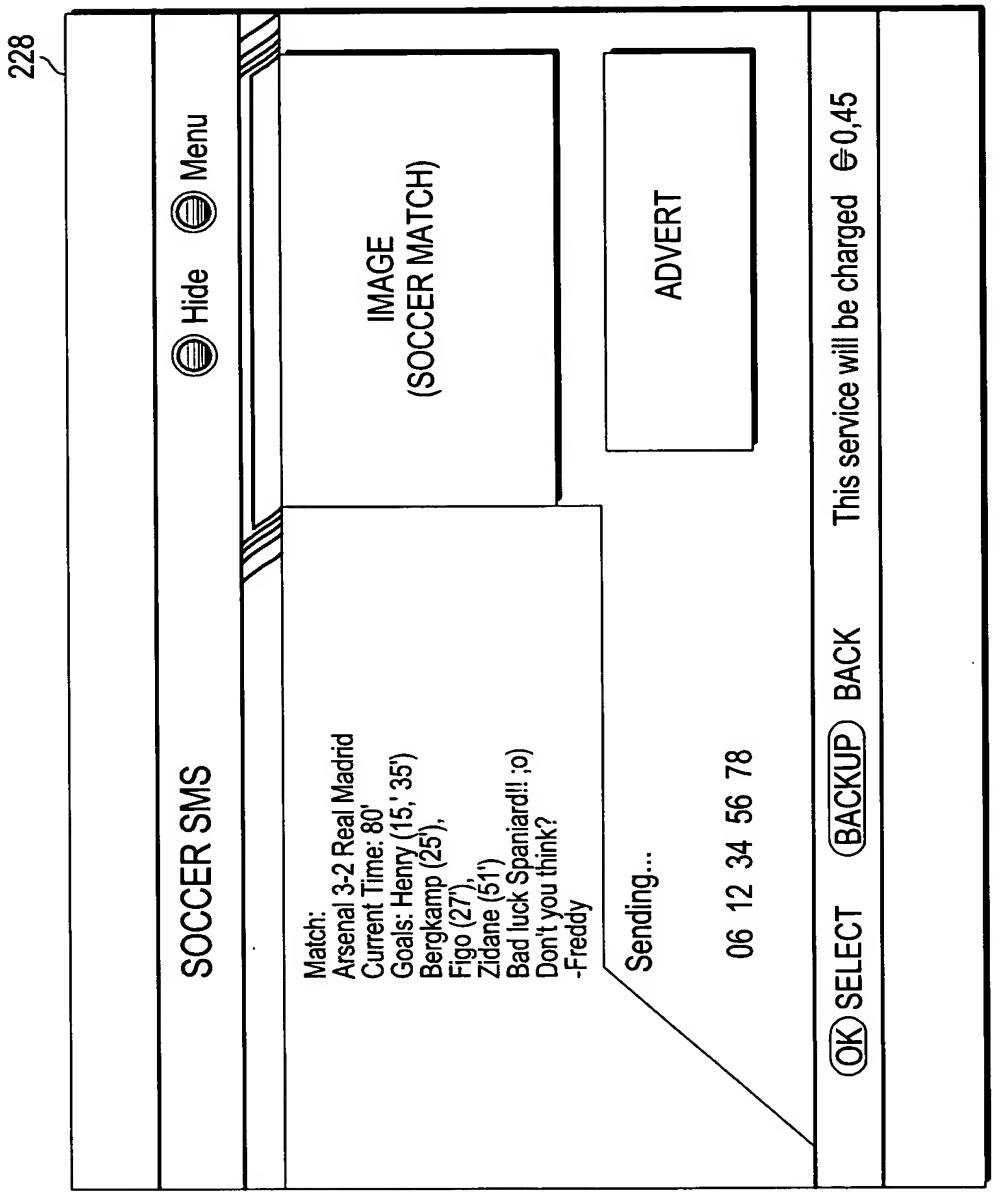
228
SOCCER SMS
Hide
Menu
IMAGE
(SOCCER MATCH)
ADVERT
This service will be charged €0,45
Match:
Arsenal 3-2 Real Madrid
Current Time: 80'
Goals: Henry (15,' 35')
Bergkamp (25'),
Figo (27'),
Zidane (51')
Bad luck Spaniard!! ;o)
Don't you think?
-Freddy
Sending...
06 12 34 56 78
OK SELECT
BACKUP
BACK

Fig. 12

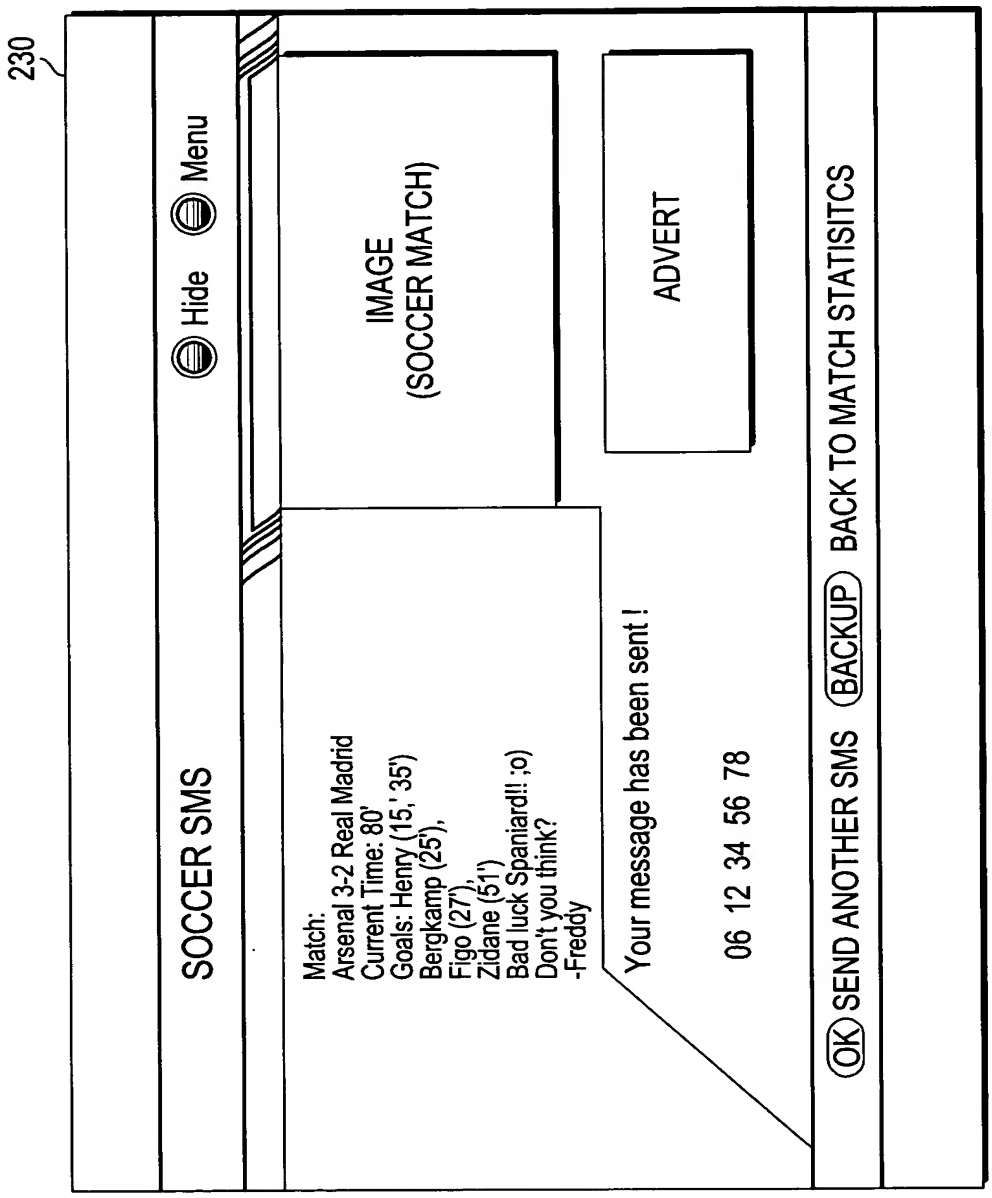
230
SOCCER SMS
Hide
Menu
IMAGE
(SOCCER MATCH)
ADVERT
Match:
Arsenal 3-2 Real Madrid
Current Time: 80'
Goals: Henry (15,' 35')
Bergkamp (25'),
Figo (27'),
Zidane (51')
Bad luck Spaniard!! ;o)
Don't you think?
-Freddy
Your message has been sent !
06 12 34 56 78
OK SEND ANOTHER SMS
BACKUP
BACK TO MATCH STATISITCS

Fig. 13

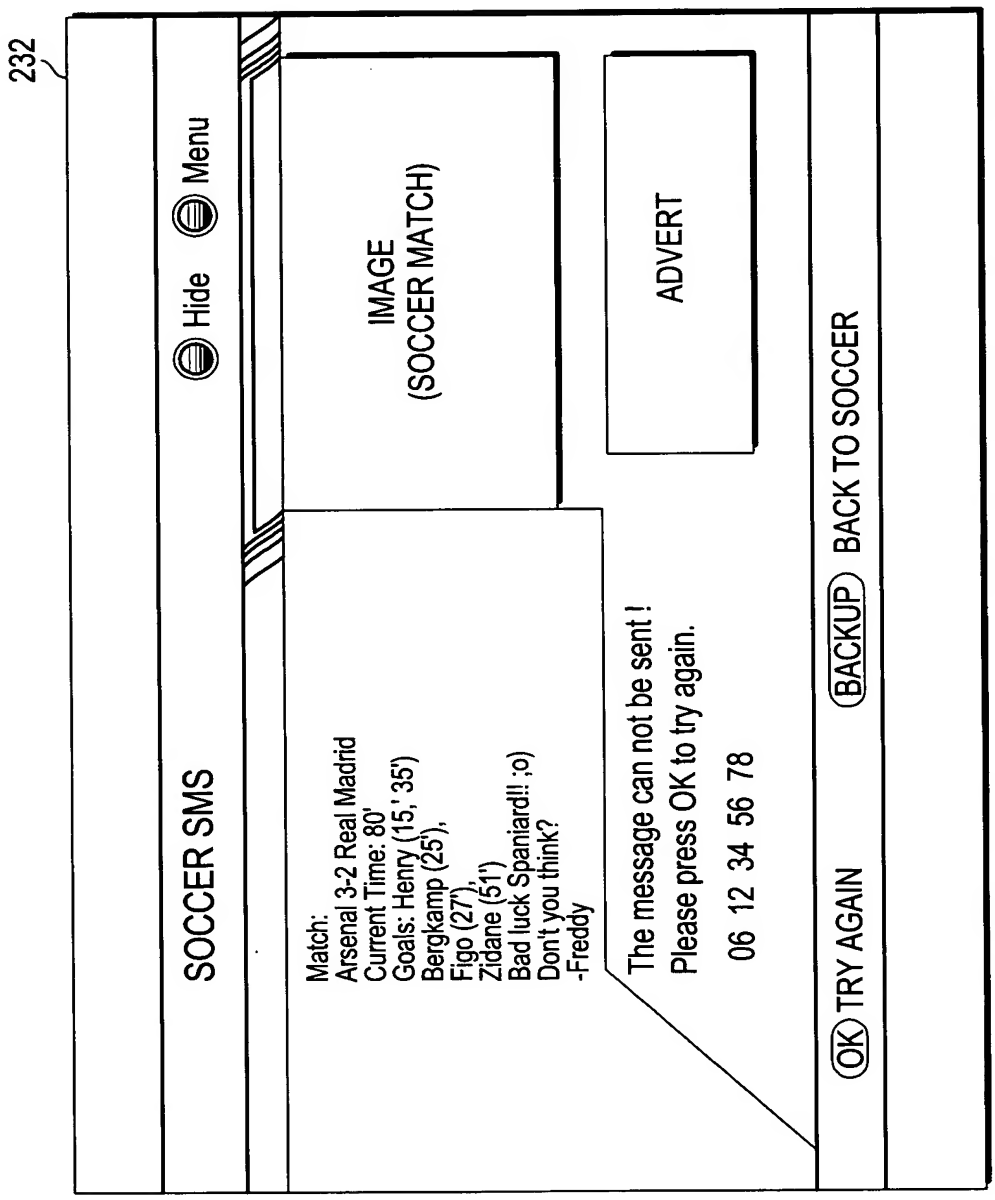
232
SOCCER SMS
Hide
Menu
IMAGE
(SOCCER MATCH)
ADVERT
Match:
Arsenal 3-2 Real Madrid
Current Time: 80'
Goals: Henry (15,' 35')
Bergkamp (25'),
Figo (27'),
Zidane (51')
Bad luck Spaniard!! ;o)
Don't you think?
-Freddy
The message can not be sent !
Please press OK to try again.
06 12 34 56 78
OK TRY AGAIN
BACKUP BACK TO SOCCER

Fig. 14

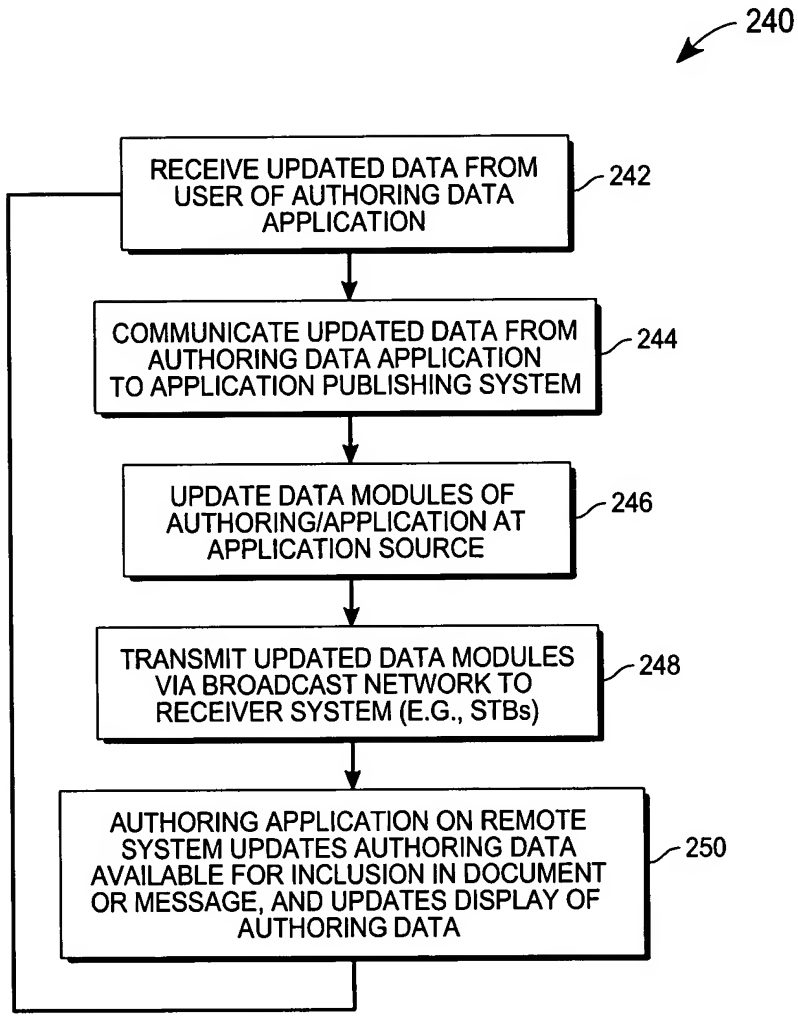
240
RECEIVE UPDATED DATA FROM USER OF AUTHORING DATA APPLICATION
242
COMMUNICATE UPDATED DATA FROM AUTHORING DATA APPLICATION TO APPLICATION PUBLISHING SYSTEM
244
UPDATE DATA MODULES OF AUTHORING/APPLICATION AT APPLICATION SOURCE
246
TRANSMIT UPDATED DATA MODULES VIA BROADCAST NETWORK TO RECEIVER SYSTEM (E.G., STBs)
248
AUTHORING APPLICATION ON REMOTE SYSTEM UPDATES AUTHORING DATA AVAILABLE FOR INCLUSION IN DOCUMENT OR MESSAGE, AND UPDATES DISPLAY OF AUTHORING DATA
250

Fig. 15

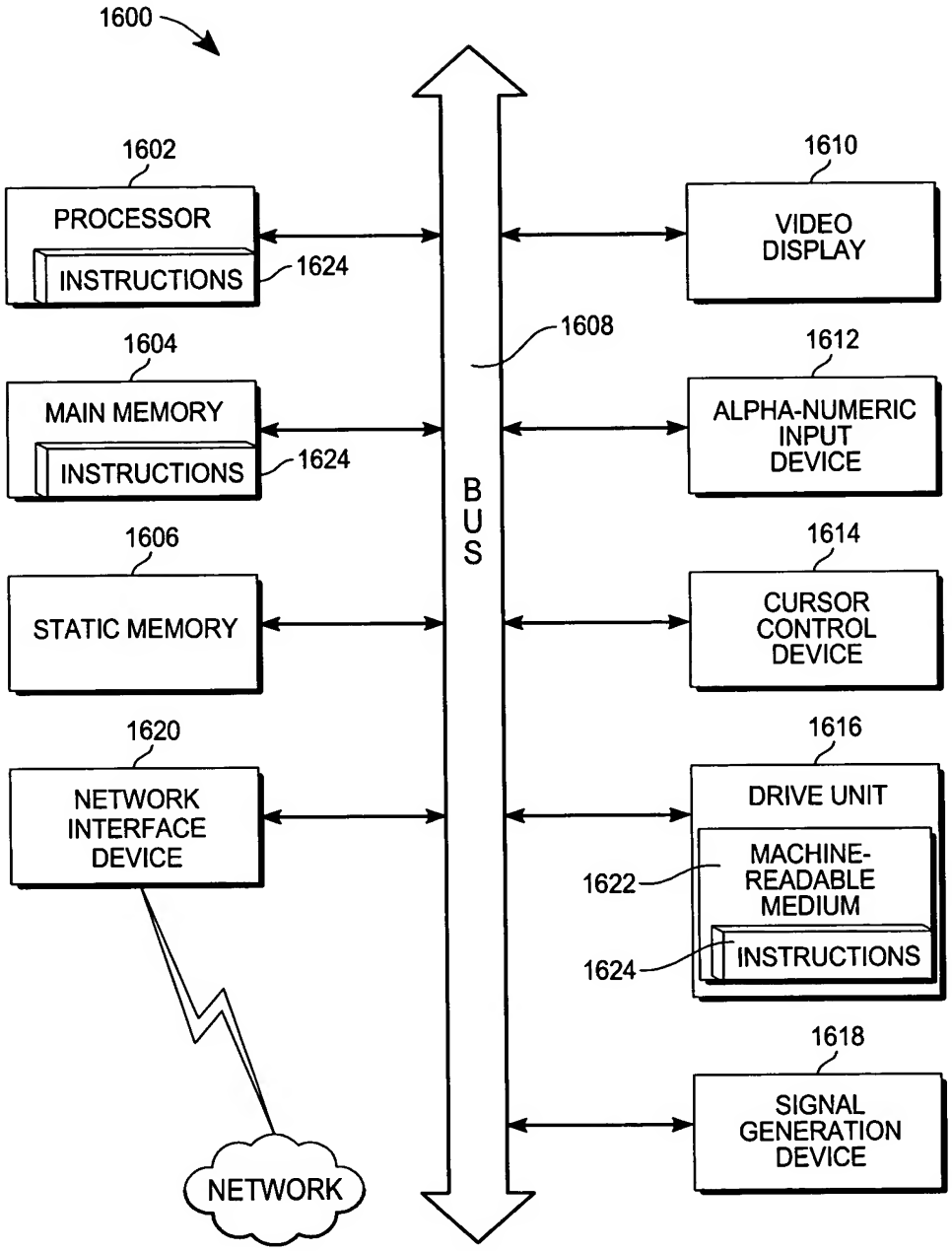
1600
1602
PROCESSOR
INSTRUCTIONS
1624
1604
MAIN MEMORY
INSTRUCTIONS
1624
1606
STATIC MEMORY
1620
NETWORK INTERFACE DEVICE
NETWORK
BUS
1608
1610
VIDEO DISPLAY
1612
ALPHA-NUMERIC INPUT DEVICE
1614
CURSOR CONTROL DEVICE
1616
DRIVE UNIT
1622
MACHINE-READABLE MEDIUM
1624
INSTRUCTIONS
1618
SIGNAL GENERATION DEVICE

Fig. 16